ATARI COMPUTER ENTHUSIASTS

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FEBRUARY, 1986

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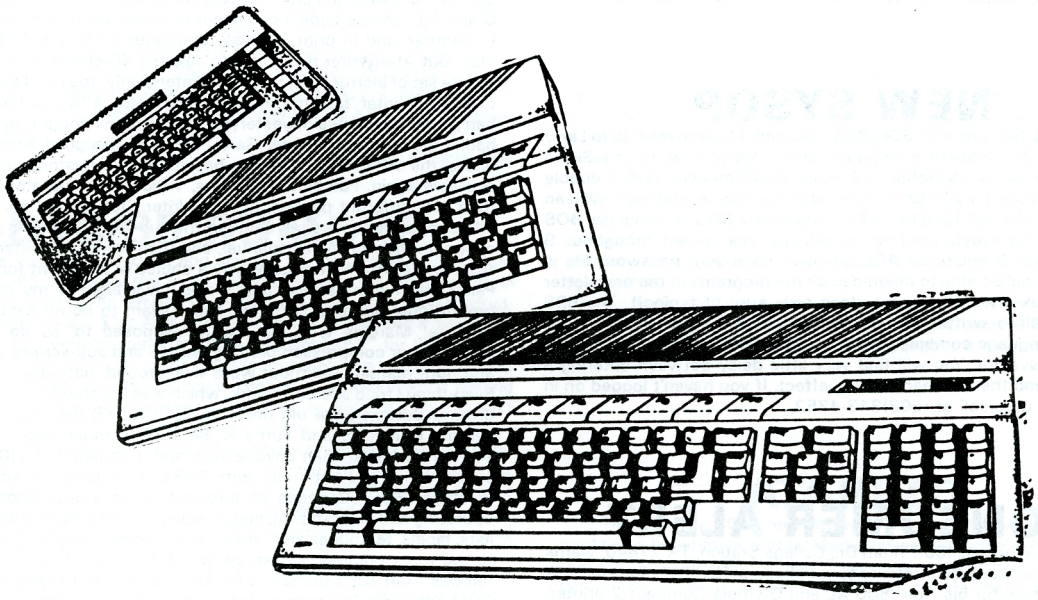

ATARI EVOLUTION

News and Reviews

by Mike Dunn, Co-Editor

ACE is now in its sixth year of publication, and I am still one of the Editors! Remarkable for a non-profit club working only on slave labor with no payroll at all. All of our money comes from your yearly dues and the "profit" from our program libary sales. With the recent steep decline in diskette prices, I am happy to announce that now all disks will cost only $10 for two, with a volume on each side of the disk. Any drive can use these double sided disks; just turn it over to read the other side.

We have a number of new disks this month, including the newest Best of ACE disks, featuring the programs from the Newsletter since the last Best of ACE disk, and some great ones from other clubs around the world.

Adelaide ACE (Australia) Symbolic Dissassembler not only dissassembles programs but attaches the proper Atari Lablel on it — a wonderful tool for advanced machine language programmers.

Atari Addicts Graphic Dump takes pictures in just about any format such as Micropainter, Koala Pad, Paint, etc and makes a very nice, quick dump on an Epson, Gemini 10X, Nec or Prowriter printer. These are large, sideways pictures.

Atari Addicts Machine Language Games is a collection of fast arcade like games in the public domain.

High Sierra Print Shop Utilities and Print Shop Pictures (Double Sided disk $10). Several useful Print Shop utilites, including a complete calender which is very nice, and on side 2, many new print shop graphics.

Remember, only $10 for two disk sides. For those of you who have not ordered Essential ACE #1 ($10 for 2 sides), it is a very nice utility disk, with 12 pages of documentation and is highly recommended. See last issue for details.

For other Atari Clubs: We are always happy to trade our disks for yours, as long as they are public domain. So if you develop new disks, let us know, or send it to us and let us know what you want.

The big club news this month is our Bulletin Board System. We now have the 10 Meg Hard disk working, as well as the Charles Andrews 320K modified 130XE. The new Sysop is Ralph Walden, author of ACE-C and his new DVC/65. He and Richard Renner, the author of PDM/L, our new bulletin board program, are working together to develop the most powerful and quickest one available — try it, you will be impressed!

NEW SYSOP

The BBS has a new SYSOP, Ralph Walden. Many thanks go to Larry Gold for his 2½ years of running the board. We're now using a Supra 10mB hard disk, a US Robotics Courier 2400 modem, and 2 double density ramdisks on a 576K XL computer by Charlie Andrews. We can handle both 300 and 1200 baud. By using Sparta DOS (a wonderful DOS system, by the way), we have download files spread thoughout 9 subdirectories. If you're an ACE member, once your password file is verified you will be able to download all the programs in the newsletter about a week after they appear (can save a lot of typing!). The BBS program itself is written in assembly language by Rich Renner. The assembly language combined with the speed of a hard disk makes for a very fast system. You will find very little delay between entering a command, and the command taking effect. If you haven't logged on in awhile, give us a call at (503)343-4352.

CONSUMER ALERT

Michael Wheeler, 1003 Timm Dr., College Station, TX 77840, warns that he was advised by a retailer to purchase a TELESYS Turboprint/A printer interface for his Atari 800 XL and Olympia Compact 2 printer. He was not able to get the Telesys interface to work in this system, and Michael provides documentation from Gary Furr (designer of the AtariWriter printer drivers) which confirms his experience. As of Jan. 1, 1986, Michael Wheeler has yet to receive any satisfaction from Telesys Computer Peripheral Products, 43334 Bryant St., Fremont, CA 94539. If you've experienced a similar problem with this product, you might want to contact Michael to find out if his situation has changed. He seems to be writing to Better Business Bureaus and to user groups and retailers all around the country.

If anyone has had success with this interface, please let us know. Perhaps the information can help.

LOVE

I LOVE MY PANASONIC PRINTER WITH GARY FURR'S CUSTOM DRIVER! Quality, Class, the Right Stuff, whatever you call it, it's hard to define and even harder to find. Mozart's music has it, and so do minutes-old steamed sweet corn, Greek art of the golden age, traditional Japanese packaging, and Belgian chocolate. My original Atari, an 800XL, does not have it but the used Atari 800 I bought (for half as much) to replace it has a lot of class. So do my Indus disk drive and Commodore(!) color monitor. Why tell you this? Because I want to tip you off to two recent products which also have Class. Quality counts and life is too short to waste on hassles with second-rate gear. The two products are my new Panasonic 1091 printer, and Gary Furr's Printer-Driver for Atariwriter. The Panasonic printer, like many newer printers, has just about all the bells and whistles: 120 cps in draft mode; 1K buffer; tractor and friction feeds for single sheets and fanfold paper; from 40 to 137 characters/line; re-definable characters (up to 40) if Roman, Italic, International, IBM block graphics and PC special graphics aren't enough; 7 bit-image modes, from 60 to 240 dots/inch horizontally, with 72/in. normal for vertical spacing (you can have vertical spacing as fine as 216/inch); Hex dump; self-test; you name it, it's probably somewhere inside (except for proportional printing, which apparently was a feature of earlier versions of this model, but not on mine). But the real treasure is the near-letter-quality (NLQ) mode, with 18x18 dots per character instead of the usual 9x9. Sure, it's much slower than draft mode, at 29 cps, but the results are almost beyond belief! It makes my old electric portable typewriter look sick. Oh, yes, the manual: Outstanding, with details for each operation and sample BASIC demo programs for most modes. With maybe 100 pages, it's quite complete; the only thing I miss is a list of commands in sequence by code/ASCII number. For less than $250, discounted, this nimble, versatile and well built printer is a super addition to my Atari-Indus-Commodore. But the printer is so versatile, with 63 primary instruction codes and numerous secondary codes for things like spacing vertical and horizontal tabs, that it can be hard to make good use of it all. Specially for word processing, where you want to think about ideas and facts, not formats, punctuation or margins. Of the half-dozen word processors in my kit, AtariWriter is the all-around favorite for day-to-day use. It's a handy cartridge — no need to search thru 150 disks to find it — and is versatile yet easy to use. It can load, display, edit, save and print not only records and files, but LISTed BASIC, C and A.L. source code. I can use it to move binary files from one disk to another, and to print out disk directories when I want to purge old files. But AtariWriter has its limits, like the 40-character screen width, and its set of instructions for Atari printers, only. You need a printer driver to let Atariwriter 'talk' to your non-Atari printer. APX sold these, but APX had joined the snows of yesteryear by the time I bought my printer. Too bad.... Good news, troops: Gary Furr, who designed AtariWriter, and wrote the APX Printer Driver, has made his custom printer drivers available again. Full blown versions, which marry up any one of more than 100 different printers to AtariWriter. Dot matrix, ink jet or daisy wheel paper gobblers, all can use the full set of controls just as they appear in the AtariWriter manual, and then some. For instance, with an Atari printer AtariWriter gives you a choice of four print fonts; with my Panasonic I have seven, and would have eight if my machine had proportional printing. For once, there seem to be no nasty surprises. Imagine! Margins work as they're supposed to, so do underlining, expanded or compressed printing, super- and sub-scripts, justified left and right margins—without word wraparound, naturally — and so on. Everything I tried seems to work, which was not true for my other printer drivers. But then the old ones' AUTORUN.SYS files ran some 4 disk sectors in length, and Furr's is 14; it does much more. Furr knows Atariwriter better than anyone else, and it shows. For $10 — can you believe it? — you get a disk with THE printer driver for your very own machine. Plus 30 pages of information on setup, booting, theory, operating and customizing, suggestions on using Atariwriter for mailing lists, labels, templates and other things I never thought of, plus answers to the most common questions which Furr gets from users. Like the famous Atari 1027 printer's 255-second 'time out'(a bug in the printer ROM which the Driver patches). Und fuer Sie, pour Vous, para Ustedes, per Voi, Furr has written German, French, Spanish and Italian versions of Atariwriter, making use — at last — of the international character set in the XL ROM and in many printers. Sad to say, Atari has not bothered to release these two-year old products, probably because they still think the 8-bit computers are 'game machines' and not a market for serious stuff. So if you want your Atari to write in your own language, be sure to write (in English, I should think) to Atari, with copies to Furr, to generate some action. For the Printer Driver, send $10 US currency ($15 if you live further away than Canada or Mexico—sorry about that!) to:

Gary Furr
P. O. Box 1330
Mountain View
California USA 94042-1330
Ciao!

— Dick Barkley

VP RAMBLINGS

Things have changed around our little bit of Atariland, I am no longer the Sysop of the BBS. The new Sysop is Ralph Walden. I think he will make a great Sysop for not only does he understand the BBS, but he knows how to fix it when something goes wrong. You who use the BBS will find many changes as there are more sections which in turn have sub-directories. The main thing to remember is that once you have logged on and have had your password validated you then have access to all parts of the BBS.

To log on to the BBS for those who have not done so or those who have not used the BBS in a long time it is quite simple. First call the board and when you you come to the place where it asks you for a password hit return and answer the questions giving your name, phone number, and any four (4) letter password you want to make up. Please don't use dirty words as they will be deleated and you will lose access to the board. After giving the necessary information the board will ask you if it is correct or if you want to make changes. If no changes are made the "Y" command will get you on the board. You will have a low level access and won't be allowed everything, but you will be able to look around and see most things. Sometime later you access level will be increased to have full access.

The number of the BBS is still the same (503) 343-4352 and if you want the Sysop his number is (503) 345-0462.

Try the new board and see what you think. I feel that we at ACE will have one of the best BBS's in the country.

As you well know the 8 bit Ataris are one of the best home computers one can own and there seem to be more and more programs coming into the marketplace taking advantage of the increased memory of the new machines. This does not mean the older computers can't use the programs. What it does mean is the software houses have not forgotten you and are bringing out more and more programs for you to use. Another great thing has happend and that is the price of computers, programs and related equipment has come way down. You can now own more than one computer, taking the load off the one computer and allowing several members of the family to use them at the same time. This is great for families with more then one high-school age child when they need to use it for reports etc. The same goes for dad when he wants to use it when the kids have taken over. In fact one can say every member of the family has more of a chance to use the computer when there is more than one available. This is not just because there are more computers, but because when more people have a chance to use them they want to do more things. Since there is such an abundance of good programs available to the user, each user can have the programs to fit their needs. I think this helps everyone and in turn helps the computer industry also.

— Larry Gold

DVC/65 RUMORS

I have been both amused and amazed by the rumors I have heard about DVC/65. Certainly the most misleading was last month's article by Dale Lutz in which he referred to a 130XE-C. There is no such product. DVC will work on any 8 bit Atari with a minimum of 48K and a disk drive. There will be a version someday "REAL SOON NOW" for Sparta DOS 2 and 3 which requires an XL or XE. It is true that I am developing DVC for the ST. The release date is unkown. I got set back two months waiting for a certain computer company in Portland to tell me they couldn't upgrade my ST to 1 meg, and return it to me.

DVC is NOT public domain. It is freeware which means you can copy the programs on the disk, but it's a federal offense to copy the documentation (it's copyrighted). A certain party is distributing a pirated disk of the documentation. Since I must still generate an income outside the computer field, those lost sales will directly affect how soon and even whether I get a version running on the ST.

DVC stands for DeVelopment Compiler. Interestingly, the needs of a software developer and someone just learning the language are the same. Both need to correct bugs as quickly and easily as possible. DVC does this by providing an extremely fast compiler and linker, and by making the compiler and editor interactive. If the compiler finds a bug, it reloads the editor and lists the line with the error. Once corrected, a single keystroke will start the compilation process again. So far, DVC compiles and links 6 times faster than anything on the ST, and 3 times faster than the best on an IBM.

To order, send $35 to Ralph E. Walden, 1821 Jefferson, Eugene, OR 97402 specifying if you want single or double density. Includes a 64 page manual, and about 150K (64 files) of programs/files.

— Ralph Walden

WILKINSON

First, regarding the little squip on Walden's C and the benchmark program on page 11: Does it surprise anyone to learn that ACTION!'s performance is just a tad faster than anything he listed? How about 125,086 repetitions? That's "only" 25 times faster than DVC/66. (Puzzle for your readers: Why is REP2 always greater than or equal to REP1 for all but the slowest languages? Answer on request.)

Still, for a P-code type language, Walden's C is fairly impressive. Nice features, nice price. I am recommending it to many people.

On the other hand, I have to take severe exception to the comment at the end of Dale Lutz's Oranges article on page 4, where someone commented: ". . .[Walden's C is better than any available for the IBM-PC." Sorry, but tain't so, unless you mean **solely** on the basis of price. . . .

Kyan Pascal for the XL/XE computers. . . . [is] the first full "standard" language for the 8-bit machines. It has some holes you can drive a disk through, it definitely needs help in the libraries department, it lacks string support now considered essential (even though neither ANSI nor ISO require it), but it works.

Now that I've plugged the competition, let me mention Personal Pascal for the ST, from — fanfare please — OSS. After you've learned Walden's C or ACTION! or Kyan Pascal on your 8-bit machine, and after you've bought your ST and can't figure out what to do with it, come look at Personal Pascal. It's a very, very solid compiler (I think this means the bugs are well hidden). It's a reasonably fast system to use (an order of magnitude better than using Atari and DRI's C compiler). It's got a darned good GEM support library. (I know. I've spent the last month documenting it!) At last you will be able to use windows, dialog boxes, menu bars, etc., without reading 1500 pages of GEM documentation which was intended for the IBM PC and only vaguely relates to the ST. When you consider the plain vanilla Kyan Pascal on the XL/XE is $69, I think our $89 ST product is a bargain.

Finally, some more comments on the Oranges article. (1) Keywords in C must be lower case, but if this is offensive you can use #define to establish a set of upper case equivalents. Personally, I use the following set of defines most of the time:

```
#define IF if (
#define THEN ) $(
#define ELSE $) else $(
#define ENDIF $)
```

Makes for neat, readable code such as this: IF a=b THEN c=a ELSE c=b ENDIF ;(Shades of ACTION!!!)

(2) The clumsiness of Forth editing is not inherent in the language definition. Only in the insanely stupid system definition of Fig-Forth. There **are** good Forths out there which do things "right". They use file names instead of screen numbers. They allow one to edit source of any arbitrary size. They work properly within the host system's OS and DOS, etc., etc. I think the Forth Interest Group, by clinging to system models which are ten or more years old (e.g., "16k memory is too much"), has done much morre to hinder the development of Forth as a serious software tool than they have ever accomplished in "spreading the gospel". Forth is **not** a bad language. But it could be a lot better with just a little work!

Enough. It's fun to rant and rave once in a while.

P.S.: If you want, soon I'll be able to give you the Personal Pascal repetition count for that benchmark. I expect it to be good.

— Bill Wilkinson

ATARI GT

The January, 1986 newsletter of the Queensland (Australia) ACE contains a benchmark test by Mark Walker in which the 8-bit Atari beat the Apple II, C-64, CoCo, and Sega computers. It even came in close behind the Microbee and Amstrad computers. He cheated a little bit. He replaced his A.L.U. chip with Newell Industry's "FastChip" (available in the States for $19.95). Here's the nasty benchmark:

```
10 FOR X=1 TO 100
20 A=SIN(X)
30 B=COS(X)
40 C=X±2
50 D=LOG(X)
60 E=SQR(X)
70 F=A+B-C*D/E
80 NEXT X
```

Here are the results he obtained: Microbee 8 sec; Amstrad 8.1 sec; Atari 10.3 sec; Apple II 18.7; C-64 20.4; CoCo 22.6; Sega 95.6. Without the FastChip installed, the Atari time is 19.4 sec. Still pretty respectable.

HIDE & FIND MACHINE CODE

(reprinted from the January, 1984 issue of Capitol District ACE)

Here are some examples of how to hide machine language subroutines so they don't get run over by BASIC. For illustration we'll use a short routine which does nothing more than change the background color of the border on the screen. The listing shows the assembler mnemonics, the assembld hexadecimal code and the decimal code used to POKE the routine into memory from BASIC.

```
DEC HEX CODE REMARKS
104 68 PLA ; pull count of number of variables passed off the stack
104 68 PLA ; pull hi byte of variable passed from stack & load into the accumulator
104 68 PLA ; pull lo byte of variable passed and load it into the accumulator for use
141 8D STA $02C8 ;store the accumulator into the background color register 02C8 hex = 712 dec
200 C8; lo byte of address
002 02; hi byte of address
96 60 RTS ; return to BASIC
```

The first PLA command is absolutely necessary since it pulls off a byte from the stack which is always generated by the USR function in BASIC. Use of this byte is optional, but it must always be pulled off first before going on with the routine. The second two bytes reflect a number passed by the USR function to the machine language routine. It is always stored in the stack in hi byte - lo byte order. This is the order in which we must pull it off so we use two more PLA commands. Now, since the border color register, $02C8, will only use a number between 1 and 128 decimal ($00-$FF hex), we don't need the hi byte so we throw it away. The low byte is POKEd into the register and, like magic, the border color changes. The RTS command returns control back to BASIC.

One method for hiding this routine is by POKEing the decimal value from BASIC into an area reserved by a DIMensioned array:

```
100 REM *THE PROGRAM*
105 REM
110 CLR :DIM E$(1,E(7)
120 RESTORE 130:FOR I=1 TO 7:READ A:POKE ADR(E$)+I,A:NEXT I
130 DATA 104,104,104,141,200,2,96
150 ? "Enter a background color";:INPUT C
160 DUMMY=USR(ADR(E$)+1,C):? PEEK(712)
170 GOTO 150
```

Since BASIC will reserve space in memory for strings and arrays in the same order in which they are DIMensioned, we are able to use an empty string, E$, as a marker to find the address of the array E(n) where we will hide the machine language code. This is performed in lines 120-130. Notice the DATA in line 130 are the decimal value listed in the table. Line 150 asks for a number between 0 and 128. Line 160 takes this number, passes it to the machine language routine through the variable C, executes the machine language routine which we POKEd into the memory location of (E$)+1, and returns control back to BASIC.

A second way to hide the ML routine is to put it directly into a BASIC string:

```
100 REM *USR DEMO*
110 CLR :DIM E$(7)
120 REM RESTORE 130:FOR I=0 TO 4:READ A:POKE ADR(E$)+I,A:NEXT I
130 REM E$=104,104,104,141,200,2,96
140 E$="hhh INV CTRL M INV H CTRL B CTRL ."
150 ? "Enter a background color";:INPUT C
160 DUMMY=USR(ADR(E$)+1,C):? PEEK(712)
170 GOTO 150
```

This entails a bit more work as one must now take the decimal values shown above and convert them to the ASCII equivalent. These are placed in order and equated to a string (Line 140). Less memory is used since there is no longer an extensive DATA listing and the code is placed into memory instantaneously. The former POKE method is very time consuming when there is any amount of code to POKE.

There you have two tricks for adequately protecting machine language code. These are both very easy (once understood) and are designed to take up a minimum of memory. The only other thing to remember is that to use either, the machine language code must be relocatable. That is, there can be no jumps to specific machine language locations other than operating system protected ones. But that's another column.

— Paul A. Amodeo

PROGRAM COMPARER

(reprinted from the October, 1983 issue of CONTACT)

This program is a utility for disk owners who write programs in BASIC. Sometimes you take out the old program, make some changes, and then put it away. Later, you may not be sure what differences, if any, exist between the two versions of the program. This program is designed to find the differences and print them for you.

The program will work with or without a printer. If you don't tell it you have a printer, it prints the changes to the screen. then, using CTRL-1 to stop the scrolling, you can write down the line numbers which have changed.

This program will only work with disk based programs. It is set up to read two programs from disk simultaneously, which cannot be done with the cassette device. Your programs must both be on the SAME disk, unless you have two disk drives. In addition, the programs must be LISTed to disk, not SAVEd. Otherwise, the program will not figure out anything meaningful on the screen!!

For those of you without printers, this utility can be very helpful. Even if you have a printer, it is easier to use this utility than it is to peruse very long BASIC program listings. It should be possible to use this program to compare assembly language source files which are produced by the Atari cartridge, OSS EASMD, and the untokenized source files produced by MAC/65 and Synassembler. You may come of with other uses for this program, too — give it a try!

— Rick Groskiewicz

USR & ADR COMMANDS

(reprinted from the December, 1983 issue of SBACE)

Below is a BASIC program which does nothing more than add 416 to 708. We hope the answer will be 1124. This program illustrates the use of the USR function and the ADR function. The ADR function returns the address in memory of the first byte of the string variable indicated. The USR function lets you jump into an assembly language program from BASIC.

```
10 DIM A$(21)
20 FOR I=1 TO 21
30 READ A
40 A$(I)=CHR$(A):REM or POKE ADR(A$)+I-1,A
50 NEXT I60 DATA 104,104,133,213,104,133,212
70 DATA 24,104,170,104,101,212,133,212
80 DATA 138,101,213,133,213,96
90 REM                                    A = 416 + 708
100 A=USR(ADR(A$),416,708)
110 ? A
120 END
```

Before we start the stack looks like this:
(empty)

After we execute the USR statement (before the assembly program executes), the stack looks like this:

```
(top) 02 N (number of variables on the stack)
01 V1 (high byte)
A0 V1 (low byte)
02 V2 (high byte)
C4 V2 (low byte)
HH return address for BASIC (high byte)
(bottom) LL return address for BASIC (low byte)
```

The assembly program then executes as follows:

```
10 PLA; pulls N from stack
;
; read in first number
;
20 PLA pulls V1 (high byte) to accumulator
30 STA D5 stores accumulator to address D5
40 PLA pulls V1 (low byte) to accumulator
50 STA D4 stores accumulator to address D4
;
; add second number to first
;
60 CLC clear carry (before adding)
70 PLA pulls V2 (high byte) to accumulator
80 TAX transfer accumulator to X register
90 PLA pulls V2 (low byte) to accumulator
100 ADC D4 adds address D4 to accumulator with carry
110 STA D4 stores accumulator to address D4
120 TXA transfer X register to accumulator
130 ADC D5 adds address D5 to accumulator with carry
140 STA D5 stores accumulator to address D5
;
; return to BASIC
;
150 RTS used return address on stack to return to BASIC
```

When returning from the USR function the numbers in address 212 (low byte), 213 (high byte) (hex D4,D5) are stored in the result variable (A) of the USR function automatically.

— David Will

CRAPS BY JOHN KELLY

```
 0 REM **********************
 1 REM * WRITTEN FOR ACE BY *
 2 REM * JOHN R. KELLEY     *
 3 REM * 608 S.E. 28th AVE  *
 4 REM * PORTLAND, OR 97214 *
 5 REM **********************
 6 REM **********************
 9 DIM A$(2)
10 REM GRAPHIT
12 POKE 710,0:POKE 712,0
14 DLI=PEEK(560)+256*PEEK(561)
15 POKE 710,112:POKE 712,112
16 POKE DLI+9,7:POKE DLI+10,7:POKE DLI
+19,6:POKE DLI+20,6
18 POSITION 7,4:? "craps          a
dice game"
20 POSITION 2,7:? " This program bring
s craps to the     computer. It is pur
ely a game of"
22 ? "chance and the only controllable
 item is the bet. Make your bets caref
ully  and LOTSALUCK!!"
24 POSITION 5,13:? "DEVISED BY      J
OHN R. KELLEY"
25 POKE DL+7,7:POKE DL+8,7
26 POSITION 7,18:? "Hit START to begin
 game."
28 IF PEEK(53279)=6 THEN 30
29 GOTO 28
30 GRAPHICS 0:POKE 710,0
31 POSITION 2,5:? "Do you want the ins
tructions?":? :? "If so, hit SELECT.":
? :? "If not, hit OPTION."
32 PE=PEEK(53279)
33 IF PE=5 THEN GOTO 39
34 IF PE=3 THEN 70
35 GOTO 32
37 ? "displays dominoes and asks the u
ser   to solve arithmetic problems bas
ed on"
39 GRAPHICS 0:POKE 710,178:POKE 712,17
8
40 XCOORD=319:YCOORD=159
42 ? :? " If a player rolls a 2, 3 or
12 on    his first roll, he loses. A 7
 or 11"
44 ? "on the 1st roll is an automatic
win.  Otherwise the Dice are rolled un
til"
45 POSITION 4,16:? "DEVISED BY JOHN R.
 KELLEY, 3/84"
46 ? "the total of the 1st roll is rol
led   again, in which case the player
wins,"
48 ? "or a 7 or 11 is rolled, in which
 case the player craps out (loses)!!!"
50 XSCALE=52:YSCALE=20
55 POSITION 9,18:? "Hit START to begin
."
60 XMARKERS=4:YMARKERS=4
65 GOTO 60
70 B=500
72 C=0:I=0
74 POKE 710,4
75 POSITION 2,3:? " **** DOMINO ARITHM
ETIC **** "
76 ? :? " Choose the type of problem y
ou want":? "Type in the number"
78 ? :? "(1) Addition "
80 POKE 82,0:GRAPHICS 8:COLOR 1:POKE 7
10,0:DIM ZA$(50)
82 ? :? "(3) Subtraction "
85 ? :INPUT N
90 ? :? "$5000 breaks the bank"
95 ON N GOTO 100,200,300
100 ? :? "How much will you bet";
102 POSITION 2,2:? "Shuffle the domino
es..."
105 INPUT C
110 IF C)B THEN ? :? "You don't have t
hat much, Hotshot!":GOTO 80
120 PLOT 0,0:DRAWTO 0,YCOORD:DRAWTO XC
OORD,YCOORD:DRAWTO XCOORD,0:DRAWTO 0,0
:GOSUB 2000
125 X=18:Y=4
130 ? :? "Hit RETURN for your 1st roll
";A$
135 GRAPHICS 0:POKE 709,4:POKE 710,15
137 POSITION 26,9:? "= ";:TRAP 137:INP
UT T1:TRAP 40000
140 ? :? "   FIRST ROLL:"
145 POSITION 2,2:? "
     "
150 L=INT(6*RND(0)+1):R=INT(6*RND(0)+1
)
151 T=L+R
152 GOSUB 1100
153 X=14:Y=3
154 ON L GOSUB 1000,1010,1020,1030,104
0,1050
155 X=22:Y=4
156 ERROR-   ON R GOSUB 1000,1010,1020
,1030,104[illegible]
165 IF T2=T THEN POSITION 5,18:? "OK!
But it doesn't count now!":FOR I=1 TO
333:NEXT I:GOTO 180
167 POSITION 5,18:? "
          "
170 POSITION 5,18:? "No, the correct a
nswer is ";T
172 FOR I=1 TO 333:NEXT I
175 POSITION 5,18:? "
          "
180 IF (T=2)+(T=3)+(T=12) THEN GOTO 38
0
183 ? "5"
185 NEXT Q
190 IF (T=7)+(T=11) THEN GOTO 400
200 ? :? T;" is your point":?
202 POSITION 2,2:? "Shuffle the domino
es..."
205 GOSUB 2300
210 ? :? "Hit RETURN for your next rol
l";:INPUT A$
215 ? "5"
220 M=INT(6*RND(0)+1):N=INT(6*RND(0)+1
)
223 U=M+N
224 GOSUB 1100
225 ? :? "  Roll!";?
230 X=14:Y=3
233 ON M GOSUB 1000,1010,1020,1030,104
0,1050
235 X=22:Y=4
237 POSITION 26,9:? "= ";:TRAP 237:INP
UT T1:TRAP 40000
240 ON N GOSUB 1000,1010,1020,1030,104
0,1050
245 POSITION 2,2:? "
     "
250 ? :? "Total....";U
255 IF T1=T THEN POSITION 5,18:? "Righ
t !":GOSUB 2400:FOR I=1 TO 333:NEXT I:
POSITION 5,18:? "       ":C=C+1:GOTO 2
80
260 IF U=T THEN GOTO 450
262 U=U+1
265 IF T2=T THEN POSITION 5,18:? "OK!
But it doesn't count now!":FOR I=1 TO
333:NEXT I:GOTO 280
267 POSITION 5,18:? "
          "
270 ERROR-   IF (U=7)+(U=11) [illegible]
272 FOR I=1 TO 333:NEXT I
275 POSITION 5,18:? "
          "
280 ? :? "Not your point,":? :? "keep
```

CRAPS

```
rolling the bones!!"
283 ? "K"
285 NEXT Q
290 GOTO 210
300 IF T=2 THEN ? :? "Snake eyes!"
302 POSITION 2,2:? "Shuffle the domino
es...."
305 GOSUB 2300
310 IF T=3 THEN ? :? "Cock eyes!"
320 IF T=12 THEN ? :? "Box cars!"
325 X=18:Y=4
330 GOTO 360
335 POSITION 13,9:? "-"
337 POSITION 26,9:? "= ";:TRAP 337:INP
UT T1:TRAP 40000
340 T=A-B
345 POSITION 2,2:? "
    "
350 ? :? "You crapped out!"
355 GOSUB 750
360 ? :? "You lose your bet!"
362 U=U+1
365 B=B-C
367 POSITION 5,18:? "
          "
370 IF B<=0 THEN GOTO 600
372 FOR I=1 TO 333:NEXT I
375 POSITION 5,18:? "
       "
380 GOTO 80
383 ? "K"
385 NEXT Q
400 POKE 752,1:? "   PRICE PER SHARE S
TOCK CHART 1986"
410 GOTO 460
420 GOSUB 1500
430 ZA$="#1: AAA DOORKNOB RENTALS, INC
.":ZX=4:ZY=130:ZZZ=0:GOSUB 1160
440 GOSUB 1500
450 ? :? "Yes! You hit your point."
455 GOSUB 700
460 ZA$="#2:  XYZ DESIGNER WASTEBASKET
S, INC.":ZX=2:ZY=140:ZZZ=0:GOSUB 1160
465 B=B+C
470 IF B>=5000 THEN GOTO 620
480 ZA$="$15":ZX=1:ZY=36:ZZZ=0:GOSUB 1
160
500 ZA$="$10":ZX=1:ZY=76:ZZZ=0:GOSUB 1
160
520 ZA$="$5":ZX=1:ZY=116:ZZZ=0:GOSUB 1
160
600 ? :? "And you're out of money, too
 bad.":? :? "Better luck next time!!!"
610 FOR WT=1 TO 666:NEXT WT:GRAPHICS 0
:END
620 ? "HEY! YOU'VE BROKEN THE BANK WIT
H $";B
630 END
650 Y=INT(6*RND(0)+1):X=INT(6*RND(0)+1
)
660 RETURN
670 Y=INT(6*RND(0)+1):X=INT(6*RND(0)+1
):RETURN
700 SOUND 0,121,10,8:FOR I=1 TO 20:NEX
T I:SOUND 1,96,10,8:FOR I=1 TO 20:NEXT
 I
710 SOUND 2,81,10,8:FOR I=1 TO 20:NEXT
 I:SOUND 3,60,10,8:FOR I=1 TO 20:NEXT
I
720 FOR RE=0 TO 3:SOUND RE,0,0,0:NEXT
RE:RETURN
750 SOUND 0,70,12,8:FOR J=0 TO 6:FOR K
=0 TO 12:NEXT K:NEXT J
760 SOUND 0,0,0,0:RETURN
880 R=INT(C/P*100)
885 GRAPHICS 18
890 ? #6
900 ? #6;" final tally "
901 ? #6
902 ? #6;" CORRECT.....";C
903 ? #6
905 ? #6;" incorrect...";U
907 ? #6
910 ? #6;" score.......";R;"%."
912 FOR WAIT=1 TO 555:NEXT WAIT
915 GRAPHICS 0:POKE 752,1
920 POSITION 2,7:? "Would you like ano
ther exercise?"
925 ? :? "If so, hit START."
926 C=0:U=0
927 ? :? "If not, hit OPTION."
930 IF PEEK(53279)=6 THEN 70
935 IF PEEK(53279)=3 THEN POSITION 2,1
7:? "Thank you! 'Til next time, then."
:FOR I=1 TO 333:NEXT I:GRAPHICS 0:END

948 GOTO 930
950 END
999 END
1000 POSITION X,Y+0:? "
1001 POSITION X,Y+1:? "
1002 POSITION X,Y+2:? "
1003 POSITION X,Y+3:? "
1004 POSITION X,Y+4:? "
1005 RETURN
1010 POSITION X,Y+0:? "
1011 POSITION X,Y+1:? "
1012 POSITION X,Y+2:? "
1013 POSITION X,Y+3:? "
1014 POSITION X,Y+4:? "
1015 RETURN
1020 POSITION X,Y+0:? "
1021 POSITION X,Y+1:? "
1022 POSITION X,Y+2:? "
1023 POSITION X,Y+3:? "
1024 POSITION X,Y+4:? "
1025 RETURN
1030 POSITION X,Y+0:? "
1031 POSITION X,Y+1:? "
1032 POSITION X,Y+2:? "
1033 POSITION X,Y+3:? "
1034 POSITION X,Y+4:? "
1035 RETURN
1040 POSITION X,Y+0:? "
1041 POSITION X,Y+1:? "
1042 POSITION X,Y+2:? "
1043 POSITION X,Y+3:? "
1044 POSITION X,Y+4:? "
1045 RETURN
1050 POSITION X,Y+0:? "
1051 POSITION X,Y+1:? "
1052 POSITION X,Y+2:? "
1053 POSITION X,Y+3:? "
1054 POSITION X,Y+4:? "
1055 RETURN
1100 FOR I=1 TO 10
1101 POSITION X,Y+1:? "
1102 POSITION X,Y+2:? "
1103 POSITION X,Y+3:? "
1104 POSITION X,Y+4:? "
1105 POSITION X,Y+5:? "
1106 POSITION X,Y+6:? "
1107 POSITION X,Y+7:? "
1108 POSITION X,Y+8:? "
1109 POSITION X,Y+9:? "
1110 FOR S=0 TO 50 STEP 20
1111 RETURN
1120 SOUND 0,5,8,15:NEXT S
1130 SOUND 0,0,0,0:NEXT I
1140 GOTO 1140
1160 REM DISPLAY TEXT IN GR.8
1170 ZL=PEEK(560)+PEEK(561)*256
1180 ZM=PEEK(ZL+4)+PEEK(ZL+5)*256
1200 FOR ZW=1 TO LEN(ZA$)
1201 POSITION X,Y+1:? "
1202 POSITION X,Y+2:? "
1203 POSITION X,Y+3:? "
1204 POSITION X,Y+4:? "
1205 POSITION X,Y+5:? "
1206 POSITION X,Y+6:? "
1207 POSITION X,Y+7:? "
```

CRAPS

```
1208 POSITION X,Y+8:? "   "
1209 POSITION X,Y+9:? "   "
1210 POSITION X,Y+10:? "   "
1211 RETURN
1220 ZT=57344+((ASC(ZA$(ZW,ZW))-32)*8)

1240 ZC=ZM+ZY*40+ZX+(ZW-1)
1260 FOR ZR=0 TO 7
1280 POKE ZC+ZR*40,PEEK(ZT+ZR)
1300 NEXT ZR
1301 POSITION X,Y+1:? "   "
1302 POSITION X,Y+2:? "   "
1303 POSITION X,Y+3:? "   "
1304 POSITION X,Y+4:? "   "
1305 POSITION X,Y+5:? "   "
1306 POSITION X,Y+6:? "   "
1307 POSITION X,Y+7:? "   "
1308 POSITION X,Y+8:? "   "
1309 POSITION X,Y+9:? "   "
1310 POSITION X,Y+10:? "   "
1320 ZY=ZY+ZZZ
1340 NEXT ZW
1360 RETURN
1400 POSITION X,Y:? "   "
1401 POSITION X,Y+1:? "   "
1402 POSITION X,Y+2:? "   "
1403 POSITION X,Y+3:? "   "
1404 POSITION X,Y+4:? "   "
1405 POSITION X,Y+5:? "   "
1406 POSITION X,Y+6:? "   "
1407 POSITION X,Y+7:? "   "
1408 POSITION X,Y+8:? "   "
1409 POSITION X,Y+9:? "   "
1410 POSITION X,Y+10:? "   "
1411 RETURN
1500 REM READ DATA, PLOT LINES
1501 POSITION X,Y+1:? "   "
1502 POSITION X,Y+2:? "   "
1503 POSITION X,Y+3:? "   "
1504 POSITION X,Y+4:? "   "
1505 POSITION X,Y+5:? "   "
1506 POSITION X,Y+6:? "   "
1507 POSITION X,Y+7:? "   "
1508 POSITION X,Y+8:? "   "
1509 POSITION X,Y+9:? "   "
1510 I=0:X=0:Y=0
1511 RETURN
1520 READ Y
1540 IF Y>YSCALE THEN RETURN
1560 Y=YCOORD-Y*(YCOORD/YSCALE)
1580 X=X+XCOORD/XSCALE
1600 IF I=0 THEN PLOT X,Y
1601 POSITION X,Y+1:? "   "
1602 POSITION X,Y+2:? "   "
1603 POSITION X,Y+3:? "   "
1604 POSITION X,Y+4:? "   "
1605 POSITION X,Y+5:? "   "
1606 POSITION X,Y+6:? "   "
1607 POSITION X,Y+7:? "   "
1608 POSITION X,Y+8:? "   "
1609 POSITION X,Y+9:? "   "
1610 POSITION X,Y+10:? "   "
1611 RETURN
1620 DRAWTO X,Y:I=I+1:GOTO 1520
1700 POSITION X,Y:? "   "
1701 POSITION X,Y+1:? "   "
1702 POSITION X,Y+2:? "   "
1703 POSITION X,Y+3:? "   "
1704 POSITION X,Y+4:? "   "
1705 POSITION X,Y+5:? "   "
1706 POSITION X,Y+6:? "   "
1707 POSITION X,Y+7:? "   "
1708 POSITION X,Y+8:? "   "
1709 POSITION X,Y+9:? "   "
1710 POSITION X,Y+10:? "   "
1711 RETURN
1800 POSITION X,Y:? "   "
1801 POSITION X,Y+1:? "   "
1802 POSITION X,Y+2:? "   "
1803 POSITION X,Y+3:? "   "
1804 POSITION X,Y+4:? "   "
1805 POSITION X,Y+5:? "   "
1806 POSITION X,Y+6:? "   "
1807 POSITION X,Y+7:? "   "
1808 POSITION X,Y+8:? "   "
1809 POSITION X,Y+9:? "   "
1810 POSITION X,Y+10:? "   "
1811 RETURN
1900 POSITION X,Y:? "   "
1901 POSITION X,Y+1:? "   "
1902 POSITION X,Y+2:? "   "
1903 POSITION X,Y+3:? "   "
1904 POSITION X,Y+4:? "   "
1905 POSITION X,Y+5:? "   "
1906 POSITION X,Y+6:? "   "
1907 POSITION X,Y+7:? "   "
1908 POSITION X,Y+8:? "   "
1909 POSITION X,Y+9:? "   "
1910 POSITION X,Y+4(.3=404(;   F This program brings craps to the
     computer. It is purely a game of
   cc   chance and the only controllable
 item is the bet. Make your bets caref
ully  and LOTSALUCK!!   DEVISED BY       JOHN R. KELLEY   +   CLOG   F This program brings craps to the     computer. It is purel
y a game of   cc   chance and the only
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controllable item is the bet. Make you r bets carefully and LOTSALUCK!! DEVISED BY JOHN R. K ELLEY + CLOG F This pro gram brings craps to the computer. It is purely a game of cc chance a nd the only controllable item is the b et. Make your bets carefully and LOTS ALUCK!! DEVISED BY JOHN R. KELLEY + F This program brings craps to the c omputer. It is purely a game of cc chance and the only controllable item is the bet. Make your bets carefully and LOTSALUCK!! DEVISE D BY JOHN R. KELLEY + CLOGDL F This program brings crap s to the computer. It is purely a game of cc chance and the only cont rollable item is the bet. Make your be ts carefully and LOTSALUCK!! DEVISED BY JOHN R. KELLE Y + < F This program br ings craps to the computer. It is purely a game of cc chance and the only controllable item is the bet. Mak e your bets carefully and LOTSALUCK!! ! DEVISED BY JOHN R. KELLEY + 1.100445241E-93$(PTRIGA DRVALCLOGCOSPTRIGYCOORD F This program brings craps to the computer. It is purely a game of cc chance and the only controllable item is the bet. Make your bets carefully and LOTSALUCK!! DEVIS ED BY JOHN R. KELLEY + 1.50882 2=0)E-150YCOORD STEP YCOORD/YSCALE:))4 ,I2000 REM DRAW SCALES
2040 FOR I=0 TO YCOORD STEP YCOORD/YSC ALE:PLOT 4,I:DRAWTO 0,I:NEXT I:REM LEF T
2060 FOR I=0 TO YCOORD STEP YCOORD/YSC ALE:PLOT 315,I:DRAWTO XCOORD,I:NEXT I: REM RIGHT
2080 FOR I=0 TO XCOORD STEP XCOORD/XSC ALE:PLOT I,4:DRAWTO I,0:NEXT I:REM TOP
2100 FOR I=0 TO XCOORD STEP XCOORD/XSC ALE:PLOT I,155:DRAWTO I,YCOORD:NEXT I: REM BOTTOM
2120 REM DRAW X & Y MARKERS
2140 FOR I=0 TO YCOORD STEP YCOORD/YMA RKERS:PLOT 8,I:DRAWTO 0,I:NEXT I:REM L EFT

DOMINO ARITHMETIC

```
0 REM **********************
1 REM *  DOMINO ARITHMETIC *
2 REM *        by          *
3 REM *   JOHN R. KELLEY   *
4 REM *  608 S.E. 28th AVE *
5 REM * PORTLAND, OR 97214 *
6 REM **********************
10 GRAPHICS 0:POKE 752,1
15 POKE 710,112:POKE 712,112
20 DL=PEEK(560)+256*PEEK(561)
25 POKE DL+7,7:POKE DL+8,7
30 POSITION 7,2:? "domino           a
rithmetic"
35 POSITION 2,5:? " This is a differen
t way to interest  students in numbers
. This program "
37 ? "displays dominoes and asks the u
ser   to solve arithmetic problems bas
ed on"
40 ? "the spots on each domino. In the
 sub- traction part the use of (-) min
us"
42 ? "numbers may require some explana
tion  for the uninitiated. This drill
is    good for the younger learner."
45 POSITION 4,16:? "DEVISED BY JOHN R.
 KELLEY, 3/84"
55 POSITION 9,18:? "Hit START to begin
."
60 IF PEEK(53279)=6 THEN 70
65 GOTO 60
70 GRAPHICS 0:POKE 752,1
72 C=0:I=0
74 POKE 710,4
75 POSITION 2,3:? " **** DOMINO ARITHM
ETIC **** "
76 ? :? " Choose the type of problem y
ou want":? "Type in the number"
78 ? :? "(1) Addition "
80 ? :? "(2) Multiplication"
82 ? :? "(3) Subtraction "
85 ? :INPUT N
90 ? :? "How many problems do you want
";:INPUT P
95 ON N GOTO 100,200,300
100 FOR Q=1 TO P:? "5  Problem #";Q
102 POSITION 2,2:? "Shuffle the domino
es..."
105 GOSUB 2300
110 X=5:Y=4
120 A=INT(12*RND(0)+1):ON A GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
125 X=18:Y=4
130 B=INT(12*RND(0)+1):ON B GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
135 POSITION 13,9:? "+"
137 POSITION 26,9:? "= ";:TRAP 137:INP
UT T1:TRAP 40000
140 T=A+B
145 POSITION 2,2:? "
      "
150 POSITION 27,9:? "    "
155 IF T1=T THEN POSITION 5,18:? "Righ
t !":GOSUB 2400:FOR I=1 TO 333:NEXT I:
POSITION 5,18:? "       ":C=C+1:GOTO 1
80
160 POSITION 5,18:? "Incorrect! Try ag
ain";:TRAP 160:INPUT T2:TRAP 40000
162 U=U+1
165 IF T2=T THEN POSITION 5,18:? "OK!
But it doesn't count now!":FOR I=1 TO
333:NEXT I:GOTO 180
167 POSITION 5,18:? "
          "
170 POSITION 5,18:? "No, the correct a
nswer is ";T
172 FOR I=1 TO 333:NEXT I
175 POSITION 5,18:? "
          "
180 REM
183 ? "5"
185 NEXT Q
190 GOTO 880
200 FOR Q=1 TO P:? "5  Problem #";Q
202 POSITION 2,2:? "Shuffle the domino
es..."
205 GOSUB 2300
210 X=5:Y=4
220 A=INT(12*RND(0)+1):ON A GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
225 X=18:Y=4
230 B=INT(12*RND(0)+1):ON B GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
235 POSITION 13,9:? "X"
237 POSITION 26,9:? "= ";:TRAP 237:INP
UT T1:TRAP 40000
240 T=A*B
245 POSITION 2,2:? "
      "
250 POSITION 27,9:?  "     "
255 IF T1=T THEN POSITION 5,18:? "Righ
t !":GOSUB 2400:FOR I=1 TO 333:NEXT I:
POSITION 5,18:? "       ":C=C+1:GOTO 2
80
260 POSITION 5,18:? "Incorrect! Try ag
ain";:TRAP 260:INPUT T2:TRAP 40000
262 U=U+1
265 IF T2=T THEN POSITION 5,18:? "OK!
But it doesn't count now!":FOR I=1 TO
333:NEXT I:GOTO 280
267 POSITION 5,18:? "
          "
270 POSITION 5,18:? "No, the correct a
nswer is ";T
272 FOR I=1 TO 333:NEXT I
275 POSITION 5,18:? "
          "
280 REM
283 ? "5"
285 NEXT Q
290 GOTO 880
300 FOR Q=1 TO P:? "5  Problem #";Q
302 POSITION 2,2:? "Shuffle the domino
es...."
305 GOSUB 2300
310 X=5:Y=4
320 A=INT(12*RND(0)+1):ON A GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
325 X=18:Y=4
330 B=INT(12*RND(0)+1):ON B GOSUB 1100
,1200,1300,1400,1500,1600,1700,1800,19
00,2000,2100,2200
335 POSITION 13,9:? "-"
337 POSITION 26,9:? "= ";:TRAP 337:INP
UT T1:TRAP 40000
340 T=A-B
345 POSITION 2,2:? "
      "
350 POSITION 27,9:?  "     "
355 IF T1=T THEN POSITION 5,18:? "Righ
t !":GOSUB 2400:FOR I=1 TO 333:NEXT I:
POSITION 5,18:? "       ":C=C+1:GOTO 3
80
360 POSITION 5,18:? "Incorrect! Try ag
ain";:TRAP 360:INPUT T2:TRAP 40000
362 U=U+1
365 IF T2=T THEN POSITION 5,18:? "OK!
But it doesn'T count now!":FOR I=1 TO
333:NEXT I:GOTO 180
367 POSITION 5,18:? "
          "
370 POSITION 5,18:? "No, the correct a
nswer is ";T
372 FOR I=1 TO 333:NEXT I
```

BY JOHN KELLY

```
375 POSITION 5,18:? "
        "
380 REM
383 ? "%"
385 NEXT Q
880 R=INT(C/P*100)
885 GRAPHICS 18
890 ? #6
900 ? #6;" final tally "
901 ? #6
902 ? #6;" CORRECT.....";C
903 ? #6
905 ? #6;" incorrect...";U
907 ? #6
910 ? #6;" score.......";R;"%."
912 FOR WAIT=1 TO 555:NEXT WAIT
915 GRAPHICS 0:POKE 752,1
920 POSITION 2,7:? "Would you like ano
ther exercise?"
925 ? :? "If so, hit START."
926 C=0:U=0
927 ? :? "If not, hit OPTION."
930 IF PEEK(53279)=6 THEN 70
935 IF PEEK(53279)=3 THEN POSITION 2,1
7:? "Thank you! 'Til next time, then."
:FOR I=1 TO 333:NEXT I:GRAPHICS 0:END

940 GOTO 930
950 END
999 END
1100 POSITION X,Y:? "
1101 POSITION X,Y+1:? "
1102 POSITION X,Y+2:? "
1103 POSITION X,Y+3:? "
1104 POSITION X,Y+4:? "
1105 POSITION X,Y+5:? "
1106 POSITION X,Y+6:? "
1107 POSITION X,Y+7:? "
1108 POSITION X,Y+8:? "
1109 POSITION X,Y+9:? "
1110 POSITION X,Y+10:? "
1111 RETURN
1200 POSITION X,Y+0:? "
1201 POSITION X,Y+1:? "
1202 POSITION X,Y+2:? "
1203 POSITION X,Y+3:? "
1204 POSITION X,Y+4:? "
1205 POSITION X,Y+5:? "
1206 POSITION X,Y+6:? "
1207 POSITION X,Y+7:? "
1208 POSITION X,Y+8:? "
1209 POSITION X,Y+9:? "
1210 POSITION X,Y+10:? "
1211 RETURN
1300 POSITION X,Y+0:? "
1301 POSITION X,Y+1:? "
1302 POSITION X,Y+2:? "
1303 POSITION X,Y+3:? "
1304 POSITION X,Y+4:? "
1305 POSITION X,Y+5:? "
1306 POSITION X,Y+6:? "
1307 POSITION X,Y+7:? "
1308 POSITION X,Y+8:? "
1309 POSITION X,Y+9:? "
1310 POSITION X,Y+10:? "
1320 RETURN
1400 POSITION X,Y:? "
1401 POSITION X,Y+1:? "
1402 POSITION X,Y+2:? "
1403 POSITION X,Y+3:? "
1404 POSITION X,Y+4:? "
1405 POSITION X,Y+5:? "
1406 POSITION X,Y+6:? "
1407 POSITION X,Y+7:? "
1408 POSITION X,Y+8:? "
1409 POSITION X,Y+9:? "
1410 POSITION X,Y+10:? "
1411 RETURN
1500 POSITION X,Y:? "
1501 POSITION X,Y+1:? "
1502 POSITION X,Y+2:? "
1503 POSITION X,Y+3:? "
1504 POSITION X,Y+4:? "
1505 POSITION X,Y+5:? "
1506 POSITION X,Y+6:? "
1507 POSITION X,Y+7:? "
1508 POSITION X,Y+8:? "
1509 POSITION X,Y+9:? "
1510 POSITION X,Y+10:? "
1511 RETURN
1600 POSITION X,Y:? "
1601 POSITION X,Y+1:? "
1602 POSITION X,Y+2:? "
1603 POSITION X,Y+3:? "
1604 POSITION X,Y+4:? "
1605 POSITION X,Y+5:? "
1606 POSITION X,Y+6:? "
1607 POSITION X,Y+7:? "
1608 POSITION X,Y+8:? "
1609 POSITION X,Y+9:? "
1610 POSITION X,Y+10:? "
1611 RETURN
1700 POSITION X,Y:? "
1701 POSITION X,Y+1:? "
1702 POSITION X,Y+2:? "
1703 POSITION X,Y+3:? "
1704 POSITION X,Y+4:? "
1705 POSITION X,Y+5:? "
1706 POSITION X,Y+6:? "
1707 POSITION X,Y+7:? "
1708 POSITION X,Y+8:? "
1709 POSITION X,Y+9:? "
1710 POSITION X,Y+10:? "
1711 RETURN
1800 POSITION X,Y:? "
1801 POSITION X,Y+1:? "
1802 POSITION X,Y+2:? "
1803 POSITION X,Y+3:? "
1804 POSITION X,Y+4:? "
1805 POSITION X,Y+5:? "
1806 POSITION X,Y+6:? "
1807 POSITION X,Y+7:? "
1808 POSITION X,Y+8:? "
1809 POSITION X,Y+9:? "
1810 POSITION X,Y+10:? "
1811 RETURN
1900 POSITION X,Y:? "
1901 POSITION X,Y+1:? "
1902 POSITION X,Y+2:? "
1903 POSITION X,Y+3:? "
1904 POSITION X,Y+4:? "
1905 POSITION X,Y+5:? "
1906 POSITION X,Y+6:? "
1907 POSITION X,Y+7:? "
1908 POSITION X,Y+8:? "
1909 POSITION X,Y+9:? "
1910 POSITION X,Y+10:? "
1911 RETURN
2000 REM
2001 POSITION X,Y:? "
2002 POSITION X,Y+1:? "
2003 POSITION X,Y+2:? "
2004 POSITION X,Y+3:? "
2005 POSITION X,Y+4:? "
2006 POSITION X,Y+5:? "
2007 POSITION X,Y+6:? "
2008 POSITION X,Y+7:? "
2009 POSITION X,Y+8:? "
2010 POSITION X,Y+9:? "
2011 POSITION X,Y+10:? "
2012 RETURN
2100 POSITION X,Y:? "
2101 POSITION X,Y+1:? "
2102 POSITION X,Y+2:? "
2103 POSITION X,Y+3:? "
2104 POSITION X,Y+4:? "
2105 POSITION X,Y+5:? "
2106 POSITION X,Y+6:? "
2107 POSITION X,Y+7:? "
```

DOMINO ARITHMETIC

```
2108 POSITION X,Y+8:? "[0][■][■][0]"
2109 POSITION X,Y+9:? "[■][■][■][■]"
2110 POSITION X,Y+10:? "[0][■][■][0]"
2111 RETURN
2200 POSITION X,Y:? "[0][■][■][0]"
2201 POSITION X,Y+1:? "[■][■][■][■]"
2202 POSITION X,Y+2:? "[0][■][■][0]"
2203 POSITION X,Y+3:? "[■][■][■][■]"
2204 POSITION X,Y+4:? "[0][■][■][0]"
2205 POSITION X,Y+5:? "[═][═][═][═]"
2206 POSITION X,Y+6:? "[0][■][■][0]"
2207 POSITION X,Y+7:? "[■][■][■][■]"
2208 POSITION X,Y+8:? "[0][■][■][0]"
2209 POSITION X,Y+9:? "[■][■][■][■]"
2210 POSITION X,Y+10:? "[0][■][■][0]"
2211 RETURN
2300 FOR I=1 TO 20
2310 FOR S=0 TO 50 STEP 20
2320 SOUND 0,S,8,15:NEXT S
2330 SOUND 0,0,0,0:NEXT I
2340 RETURN
2400 SOUND 0,121,10,8:FOR I=1 TO 15:NE
XT I:SOUND 1,96,10,8:FOR I=1 TO 15:NEX
T I
2410 SOUND 2,81,10,8:FOR I=1 TO 15:NEX
T I:SOUND 3,60,10,8:FOR I=1 TO 15:NEXT
 I
2420 FOR RE=0 TO 3:SOUND RE,0,0,0:NEXT
 RE:RETURN
```

GRAPHIT

```
10 REM GRAPHIT
40 XCOORD=319:YCOORD=159
50 XSCALE=52:YSCALE=20
60 XMARKERS=4:YMARKERS=4
80 POKE 82,0:GRAPHICS 8:COLOR 1:POKE 7
10,0:DIM ZA$(50)
120 PLOT 0,0:DRAWTO 0,YCOORD:DRAWTO XC
OORD,YCOORD:DRAWTO XCOORD,0:DRAWTO 0,0
:GOSUB 2000
400 POKE 752,1:? "   PRICE PER SHARE S
TOCK CHART 1984"
420 GOSUB 1500
430 ZA$="#1: AAA DOORKNOB RENTALS, INC
.":ZX=4:ZY=130:ZZZ=0:GOSUB 1160
440 GOSUB 1500
460 ZA$="#2:  XYZ DESIGNER WASTEBASKET
S, INC.":ZX=2:ZY=140:ZZZ=0:GOSUB 1160
480 ZA$="$15":ZX=1:ZY=36:ZZZ=0:GOSUB 1
160
500 ZA$="$10":ZX=1:ZY=76:ZZZ=0:GOSUB 1
160
520 ZA$="$5":ZX=1:ZY=116:ZZZ=0:GOSUB 1
160
1140 GOTO 1140
1160 REM DISPLAY TEXT IN GR.8
1170 ZL=PEEK(560)+PEEK(561)*256
1180 ZM=PEEK(ZL+4)+PEEK(ZL+5)*256
1200 FOR ZW=1 TO LEN(ZA$)
1220 ZT=57344+((ASC(ZA$(ZW,ZW))-32)*8)

1240 ZC=ZM+ZY*40+ZX+(ZW-1)
1260 FOR ZR=0 TO 7
1280 POKE ZC+ZR*40,PEEK(ZT+ZR)
1300 NEXT ZR
1320 ZY=ZY+ZZZ
1340 NEXT ZW
1360 RETURN
1500 REM READ DATA, PLOT LINES
1510 I=0:X=0:Y=0
1520 READ Y
1540 IF Y)YSCALE THEN RETURN
1560 Y=YCOORD-Y*(YCOORD/YSCALE)
1580 X=X+XCOORD/XSCALE
1600 IF I=0 THEN PLOT X,Y
1620 DRAWTO X,Y:I=I+1:GOTO 1520
2000 REM DRAW SCALES
2040 FOR I=0 TO YCOORD STEP YCOORD/YSC
ALE:PLOT 4,I:DRAWTO 0,I:NEXT I:REM LEF
T
2060 FOR I=0 TO YCOORD STEP YCOORD/YSC
ALE:PLOT 315,I:DRAWTO XCOORD,I:NEXT I:
REM RIGHT
2080 FOR I=0 TO XCOORD STEP XCOORD/XSC
ALE:PLOT I,4:DRAWTO I,0:NEXT I:REM TOP

2100 FOR I=0 TO XCOORD STEP XCOORD/XSC
ALE:PLOT I,155:DRAWTO I,YCOORD:NEXT I:
REM BOTTOM
2120 REM DRAW X & Y MARKERS
2140 FOR I=0 TO YCOORD STEP YCOORD/YMA
RKERS:PLOT 8,I:DRAWTO 0,I:NEXT I:REM L
EFT
2160 FOR I=0 TO YCOORD STEP YCOORD/YMA
RKERS:PLOT 311,I:DRAWTO XCOORD,I:NEXT
I:REM RIGHT
2180 FOR I=0 TO XCOORD STEP XCOORD/XMA
RKERS:PLOT I,7:DRAWTO I,0:NEXT I:REM T
OP
2200 FOR I=0 TO XCOORD STEP XCOORD/XMA
RKERS:PLOT I,152:DRAWTO I,YCOORD:NEXT
I:REM BOTTOM
2220 RETURN
2300 DATA 17.95,17.65,17.72,17.56,17.0
7,16.72,15.84,15.55,15.38,15,14.32,13.
89,13.8,13.98,14.31,14.71,15.26,16.17
2320 DATA 16.86,17.16,17.45,17.30,17.3
0,17.06,17.12,17.12,17.12,17.23,17.34,
17.46,17.32,17.38,17.34,17.07,17.04,16
.62
2340 DATA 16.38,15.88,15.45,14.99,14.7
4,14.62,14.5,14.11,13.69,12.96,12.62,1
2.01,12.84,11.85,11.55,11.92,101
2360 DATA 16.86,16.96,16.76,16.5,15.78
,15.62,14.67,14.27,14.2,13.98,13.37,13
.27,13.29,13.54,13.83,14.09,15,16.04
2380 DATA 16.79,16.75,17.16,17.45,17.1
2,16.72,16.32,16.21,16.32,16.41,16.29,
16.25,16.75,16.73,16.15,16.10,15.72,14
.10
2400 DATA 14.25,13.05,13.47,13.61,13.7
4,13.18,12.96,12.43,12.03,11.36,10.89,
10.62,10.89,10.49,10.69,10.96,101
```

GLOBAL CHANGE

```
10 TRAP 1020:GOSUB 1100:PRINT CHR$(125
);TTL$
20 REM ** GET FILE NAME
30 PRINT :PRINT " Insert Filemanager D
ata Disk"
50 PRINT :PRINT " Enter name of file "
;:INPUT ANSR$
60 FILE$=ANSR$:FILE$(LEN(FILE$)+1)=".F
MT":FLNAM$=ANSR$:IDX=1
70 REM ** GET AND DISPLAY FIELDS
80 PRINT CHR$(125);TTL$:POKE 752,0
90 OPEN #1,4,0,FILE$
100 INPUT #1;NUMFLD$
110 INPUT #1;FLDN$
120 FOR N=1 TO 5:INPUT #1;A:FN(N)=A:NE
XT N:A=0
130 CLOSE #1:LE=LEN(FILE$):FILE$(LE-3,
LE)=".IDX":OPEN #1,4,0,FILE$
140 FOR N=1 TO 5:INPUT #1;IDX1:NEXT N:
INPUT #1;IDX2:INPUT #1;IDX3
150 PRINT :PRINT "File ";CHR$(34);FLNA
M$;CHR$(34);" has ";NUMFLD$;" fields"
160 PRINT :PRINT ,"Field names"
170 PRINT LIN$:A=0:B=5:C=3
```

GLOBAL CHANGE

```
180 FOR N=1 TO NUMFLDS*12 STEP 12:A=A+
1
190 B=B1:IF A=11 THEN C=20:B=6
200 IF A=10 THEN C=2
210 POSITION C,B:PRINT A;". ";FLDN$(N,
N+11)
220 NEXT N:POSITION 2,16:PRINT LIN$
230 IF IDX=0 THEN PRINT " NO INDEX FOU
ND ":GOTO 280:REM "(INVERSE)"
240 PRINT "Indexed fields:  ";
250 IF IDX1)0 THEN PRINT IDX1;
260 IF IDX2)0 THEN PRINT ",";IDX2;
270 IF IDX3)0 THEN PRINT ",";IDX3;
280 PRINT :PRINT :PRINT " Which field
to search on ";:INPUT SRCHFLD
290 PRINT "Which field to change ";:IN
PUT CHGFLD
300 REM ** DISPLAY INSTRUCTIONS
310 PRINT CHR$(125);TTL$:CHGFLD$=FLDN$
((CHGFLD-1)*12+1,(CHGFLD-1)*12+12)
320 SRCHFLD$=FLDN$((SRCHFLD-1)*12+1,(S
RCHFLD-1)*12+12)
330 PRINT :PRINT "* ";CHGFLD$;" has ";
FN(CHGFLD);" characters."
340 PRINT "* ";SRCHFLD$;" has ";FN(SRC
HFLD);" characters.";:PRINT
350 PRINT LIN$:PRINT " If entry is enc
losed in Quotes"
360 PRINT "       EXAMPLE:";CHR$(34);"
TEST";CHR$(34)
370 ? " any record in which this field
 ";:? "contains the letters between":?
" the quotation marks will be changed.
"
380 PRINT LIN$:PRINT " If entry is enc
losed in asterisks":PRINT "       EXAMP
LE: *TEST*":PRINT " any records in whi
ch this field does"
390 PRINT " not contain the letters be
tween":PRINT " Asterisks will be chang
ed.":PRINT LIN$
400 REM ** GET CRITERIA
405 CHG$=" ":CHG$(255)=CHG$:CHG$(2)=CH
G$
410 POSITION 2,18:PRINT "Search for: "
;:INPUT CRIT$
420 POSITION 2,19:PRINT "Change to: ";
:INPUT ANSR$
425 CHG$(1,FN(CHGFLD))=ANSR$
430 POSITION 2,20:PRINT "Use Query (Y/
N): ";:INPUT ANSR$
440 IF ANSR$(1,1)="Y" THEN QUERY=1:GOT
O 460
450 QUERY=0
460 POKE 752,1:POKE 764,255:POSITION 5
,22:PRINT " CORRECT (Y/N/End)?"
470 PE=PEEK(764):IF PE=255 THEN 470
480 IF PE=35 THEN POSITION 2,18:PRINT
"       ";:POKE 764,255:POKE 752,0:GOTO
410
490 IF PE=42 THEN RUN :REM "E"
500 IF PE=43 THEN 520:REM "Y"
510 GOTO 470
520 REM ** BEGIN SEARCH
530 PRINT CHR$(125);TTL$:RN=1
540 FILE$(1,1+LEN(FLNAM$))=FLNAM$:FILE
$(LEN(FILE$)+1)=".DAT"
550 CLOSE #1:OPEN #1,12,0,FILE$
560 X=1:FOR N=1 TO NUMFLDS
570 IF SRCHFLD=N THEN STSRCH=X:LNGTHSR
CH=FN(N)
580 IF CHGFLD=N THEN STCHG=X:LNGTHCHG=
FN(N)
590 X=X+FN(N):NEXT N
600 REM ** GET FILE AND CHECK FOR MATC
H
610 FOR N=1 TO LEN(CRIT$):X$=CRIT$(N,N
)
620 IF X$="*" THEN STYPE$="<>":POP :GO
TO 650
630 IF X$=CHR$(34) THEN STYPE$="=":POP
 :GOTO 650
640 NEXT N:STYPE$="=>":GOTO 690
650 LNTH=LEN(CRIT$):IF CRIT$(LNTH,LNTH
)<>"*" OR CRIT$(LNTH,LNTH)<>CHR$(34) T
HEN 670
660 CRIT$=CRIT$(2,LEN(CRIT$)):GOTO 680

670 CRIT$=CRIT$(2,LNTH-1)
680 LNTH=LEN(CRIT$)
690 NOTE #1,SEC,BYTE:INPUT #1;INPT$
700 POSITION 2,2:PRINT "Record #: ";RN

710 POSITION 2,4:PRINT SRCHFLD$;";";
720 POSITION 5,6:FLD1$=INPT$(STSRCH,ST
SRCH+(LNGTHSRCH-1)):PRINT FLD1$
730 POSITION 2,13:PRINT CHGFLD$;";";
740 POSITION 5,15:FLD2$=INPT$(STCHG,ST
CHG+(LNGTHCHG-1)):PRINT FLD2$
750 POSITION 2,19:PRINT "Changed to: "
;
760 POSITION 5,20:PRINT "        "
770 IF STYPE$="<>" THEN 830
780 IF STYPE$="=" THEN 880
790 REM ** CHECK FOR = OR >
800 IF FLD1$(1,LEN(CRIT$))=CRIT$ THEN
920
810 RN=RN+1:GOTO 690
820 REM ** CHECK FOR <>
830 REM
840 FOR N=1 TO LEN(FLD1$)-LNTH
850 IF FLD1$(N,N+LNTH-1)=CRIT$ THEN RN
=RN+1:GOTO 690
860 NEXT N:GOTO 920
870 REM ** CHECK FOR =
880 FOR N=1 TO LEN(FLD1$)-LNTH
890 IF FLD1$(N,N+LNTH-1)=CRIT$ THEN 92
0
900 NEXT N:RN=RN+1:GOTO 690
910 REM ** CHANGE FILE AND PUT BACK
920 IF QUERY=0 THEN 980
930 POKE 764,255:POSITION 5,22:PRINT "
Change this record (Y/N) ?"
940 PE=PEEK(764):IF PE=255 THEN 940
950 IF PE=43 THEN 980:REM "Y"
960 IF PE=35 THEN RN=RN+1:GOTO 690:REM
 "N"
970 GOTO 940
980 POSITION 5,21:PRINT CHG$(1,LNGTHCH
G):INPT$(STCHG,STCHG+(LNGTHCHG-1))=CHG
$
990 POINT #1,SEC,BYTE:PRINT #1;INPT$
1000 RN=RN+1:GOTO 690
1010 REM ** CHECK FOR ERRORS
1020 TRAP 1020:ERR=PEEK(195):ERLIN=PEE
K(186)+256*PEEK(187)
1030 IF ERR=136 THEN 1060
1040 IF ERR=170 AND ERLIN=130 THEN IDX
=0:GOTO 150
1050 POSITION 2,22:PRINT "Error ";ERR;
" at line ";ERLIN:STOP
1060 CLOSE #1:POSITION 10,22:PRINT " D
ELETING INDEX ":FILE$(LE-3,LE)=".IDX":
XIO 33,#1,0,0,FILE$
1070 IF (CHGFLD=IDX1) OR (CHGFLD=IDX2)
 OR (CHGFLD=IDX3) THEN DEL=1
1080 IF DEL=1 THEN POSITION 10,22:PRIN
T " DELETING INDEX ":FILE$(LE-3,LE)=".
IDX":XIO 33,#1,0,0,FILE$
1090 CLOSE #1:FILE$(LE-3,LE)=".FMT":PO
KE 764,255:GOTO 80
1100 REM **  SET UP VARIABLES
1110 PRINT CHR$(125);:DIM TTL$(30):TTL
$="       GLOBAL CHANGE PROGRAM "
1120 DIM ANSR$(255),FILE$(17),FLDN$(24
0),LIN$(40),CHGFLD$(12),FNCT$(40),FLNA
M$(17),CRIT$(30),SRCHFLD$(12)
1130 DIM CHG$(255),INPT$(255),X$(1),ST
YPE$(2),FLD1$(255),FLD2$(255),FN(20)
1140 LIN$="------------------------------
----------":PRINT LIN$:A=0:B=5:C=2
1150 RETURN
```

CRAPS

```
2160 FOR I=0 TO YCOORD STEP YCOORD/YMA
RKERS:PLOT 311,I:DRAWTO XCOORD,I:NEXT
I:REM RIGHT
2180 FOR I=0 TO XCOORD STEP XCOORD/XMA
RKERS:PLOT I,7:DRAWTO I,0:NEXT I:REM T
OP
2200 FOR I=0 TO XCOORD STEP XCOORD/XMA
RKERS:PLOT I,152:DRAWTO I,YCOORD:NEXT
I:REM BOTTOM
2220 RETURN
2300 DATA 17.95,17.65,17.72,17.56,17.0
7,16.72,15.84,15.55,15.38,15,14.32,13.
89,13.8,13.98,14.31,14.71,15.26,16.17
2320 DATA 16.86,17.16,17.45,17.30,17.3
0,17.06,17.12,17.12,17.12,17.23,17.34,
17.46,17.32,17.38,17.34,17.07,17.04,16
.62
2340 DATA 16.38,15.88,15.45,14.99,14.7
4,14.62,14.5,14.11,13.69,12.96,12.62,1
2.01,12.84,11.85,11.55,11.92,101
2360 DATA 16.86,16.96,16.76,16.5,15.78
,15.62,14.67,14.27,14.2,13.98,13.37,13
.27,13.29,13.54,13.83,14.09,15,16.04
2380 DATA 16.79,16.75,17.16,17.45,17.1
2,16.72,16.32,16.21,16.32,16.41,16.29,
16.25,16.75,16.73,16.15,16.10,15.72,14
.10
2400 DATA 14.25,13.05,13.47,13.61,13.7
4,13.18,12.96,12.43,12.03,11.36,10.89,
10.62,10.89,10.49,10.69,10.96,101
```

ACTION SUBROUTINES

```
BYTE FUNC GES(CARD S1,S2)
BYTE TEMP
;
; RETURNS TRUE($FF) IF S1 <= S2
; FALSE($00) OTHERWISE
;
; S1 IS ADDRESS OF FIRST STRING
; S2 IS ADDRESS OF SECOND STRING
;
 IF SCOMPARE(S1,S2)=0 THEN
  TEMP=$FF
 ELSE
  TEMP=$00
 FI
RETURN (TEMP)
```

```
PROC UPCASE(CARD A2,A1)
;
; RETURNS THE STRING S1 THROUGH S2
; CONVERTED TO UPPERCASE
;
; A1,A2 ARE THE ADDRESSES OF S1,S2
; RESPECTIVELY
;
BYTE ARRAY S1,S2
BYTE I
 S1=A1
 S2=A2
 S2(0)=S1(0)
 FOR I=1 TO S1(0)
 DO
  IF 'z)=S1(I) AND S1(I))='a THEN
   S2(I)=S1(I)+('A-'a)
  ELSE
   S2(I)=S1(I)
  FI
 OD
RETURN
```

```
BYTE FUNC INDEX(CARD A1,A2)
;
; RETURNS THE POSITION OF STRING S2
; IN S1, RETURNS 0 IF FAILURE
;
; A1,A2 ADDRESS OF S1,S2 RESPECTIVELY
;
BYTE ARRAY S1,S2
BYTE I,J,TEMP
 S1=A1
 S2=A2
 IF S1(0))=S2(0) THEN
  FOR I=1 TO S1(0)-S2(0)+1
  DO
   FOR J=1 TO S2(0)
   DO
    IF S1(I+J-1)=S2(J) THEN
     IF J=S2(0) THEN
      RETURN(I)
     FI
    ELSE
     EXIT
    FI
   OD
  OD
 FI
RETURN (0)
```

```
BYTE FUNC LES(CARD S1,S2)
BYTE TEMP
;
; RETURNS TRUE($FF) IF S1 <= S2
; FALSE($00) OTHERWISE
;
; S1 IS ADDRESS OF FIRST STRING
; S2 IS ADDRESS OF SECOND STRING
;
 IF SCOMPARE(S1,S2)<=0 THEN
  TEMP=$FF
 ELSE
  TEMP=$00
 FI
RETURN (TEMP)
```

WALDEN SPEED TEST

```
/* SPEED.C -test of function speed */

#define SECONDS 8 /* total number of
 seconds the program will run */

test1() ${
  /* place funtion here */
$}

test2() ${
  /* place function here  */
$}

main() ${
  int seconds;
  char *rep1,*rep2; /* these will act
  like unsigned integers */
  seconds=(SECONDS*60)/2;
  for(rep1=0,clrtime();gtime()<seconds
; ++rep1) test1();
  for(rep2=0,clrtime();gtime()<seconds
; ++rep2) test1();
  printf("\ntest1 = %u repetitions\nte
st2 = %u repetitions\n\n",rep1,rep2);
  if(rep1>rep2) printf("test1 is faste
r than test2\n");
  else if(rep2>rep1) printf("test2 is
faster than test1\n");
  else printf("test1 and test2 are the
 same.\n");
$}
```

BUMPAS REVIEWS

My boss put an Atari 520 ST on my desk instead of the Wyse-50 terminal I was using on his Alpha-Micro system. With a VT100 driver on the main system, and PC/Intercomm on my Atari I've got a terminal better than any in the office. Today my boss just told me he likes the Atari so much he's going to put it in his satellite office in Portland. Now I've got to wait again for another one on my desk!

'NAM

'NAM is a new game from SSI ($40) and the latest design of Roger Damon. You know him from Operation Whirlwind, Field of Fire, Panzer Grenadier.

Are we still too close to the Vietnam War to enjoy it as a game? I think I might be. I wonder how many WW2-era vets enjoy wargaming WW2? But there's a whole generation of people out there who may not know as much about the Vietnam War as do those of us who lived through the period.

The game is very well executed. Line of sight rules are superior, and the play action is furious even though not in real time. Three levels of difficulty permit you to be smashed at your best, or to give yourself a fighting chance.

Player control during a scenario is entirely by joystick. Here are some things you can do: You can move, fire and assault with helicopters (2 basic types), tanks (2 types), infantry (10 types including ARVN, Police, Black Panthers, Marines, Paratroops, Rangers, Marines, Special Forces A-Teams). There are also machine-gun, mortar, bazooka, recoilless rifle, artillery and truck units. Trucks and transport helicopters can carry infantry and support weapons. Use this flexibility in those scenarios where mobility is important.

There are 6 scenarios with a good variety of settings. The manual provides good descriptions of your task and full-page situation maps of each scenario. Two of the most novel scenarios include an assault upon the city of Hue, and an operation to clear out underground tunnels. Mobility is important in both these scenarios since all enemy units must be eliminated and some of these are outside the city in the one scenario, and outside the tunnels in the other.

A couple of the scenarios you may find mobility less important. You're more or less just sitting there in a fire base, or being ambushed on a road fighting off hordes of units. Your best bet might be to try to retreat a little bit to have more shooting room as they come towards you. Your performance in the battle is graded down severely for each unit you lose. So watch your unit strengths. When it gets down to 1 (or 2 or 3 if heavily engaged), try to take them out of the front lines. You may find they will regain some strength again so you can throw them in later.

As a game, this is excellent. Novices and old-hands alike will enjoy it. Especially if you can be thankful these are only electronic impulses you are destroying and not real people.

We have a press release from JM-1 Products (Box 1621, Boynton Beach, FL 33425) regarding their **Orator** Speech Synthesizer Kit for use with all 8-bit Atari computers. The kit is $46 (plus $25 if you want them to assemble it for you).

We have not seen the product, but they say the kit includes: pc board, speech chip with socket, amplifier chip with socket, assembly instructions, instructions for integrating speech into your programs, and a disk containing several demo programs. They say it uses the joystick ports and graphics, music and speech can all occur simultaneously (that's what they say!).

VIP PROFESSIONAL

VIP Professional (VIP Technologies, 132 Aero Camino, Santa Barbara, CA 93117, $122 discounted) tells you it's a "jazzed-up Lotus 1-2-3" for your Atari 520 ST. The box, manual, and pre-release demos of this program all show full integration with the GEM interface. Unfortunately, the GEM interface version is not yet on the market. I have a letter from VIP, dated Jan. 9, 1986 in which they say to ignore the $20 coupon for the GEM update. The update will be given to all registered owners free of any charge. You see, a 512k system with TOS in RAM has insufficient memory to do much with this program.

Until today, my review of this product could be encapsulated in three statements: No data; you can't print the data you have; and, it crashes your system. Today I got the patch to the bug which was preventing the user from printing out a worksheet. Happily I am now able to print a small worksheet I designed.

Running up the program, I find I have only about a 33k data buffer with my system. Well, I said, that's better than the 21k I have in SynCalc on my 8-bit Atari. I've been keeping softball stats on my Atari since 1982. So I put my softball template into VIP. It's a 26x24 template with 7 formulas repeated in 18 of the rows. It fits in my SynCalc with room for data for more than 20 players. In VIP, I ran out of room (memory!) with only about 16 or so players. So I conclude VIP uses more memory to store the same information SynCalc stores on an 8-bit system.

My recommendation (and, by the way, VIP's recommendation): Upgrade to 1-meg and/or put in the ROM chips. The ROM chips should be available by the time you read this. The documentation tells you you'll have more data space than a fully-configured IBM PC when you have the ROMs in or a 1-meg upgrade!

Another item I miss from SynCalc is the ability to use formulas as long as 128 characters. With VIP, I am unable to use any formula longer than 80 characters. The cell will take more characters than that, but it appears to me the calculation will not include any expressions which are in the area of the formula beyond 80 characters. I couldn't find anything in the very well-done documentation which addresses the size of the formula which may be in any cell.

How about the program itself? I used Lotus 1-2-3 for more than 2 years on the IBM. The program is so similar, I was able to put in my softball template without even looking at the documentation. It seems to function nearly exactly like Lotus. The documentation claims "the same books, magazines, templates and applications written for 1-2-3" will work on this program. That's pretty exciting stuff, since there is a lot out there to make 1-2-3 more valuable to the user. Enhancements of 1-2-3 include the use of the mouse and GEM interface (but not quite yet). The mouse feature is well implemented. When entering formulas, for instance, you can use the mouse to point to cells and the program automatically enters the cell address into the formula. Try that with your IBM! The manual claims it can use a giant 8192 row by 256 column template (about 4 times larger than the Lotus v.1.0 maximum). The manual is excellent, with plenty of screen shots and examples. Unfortunately, much of it's applicable only to the GEM version, and not the text version which I have.

There is one great bug, which VIP has already addressed. The print function fails to work as advertized on the first issue of the program. Printing produces no data. Contact your local dealer to get the fix. The Appendices include instructions on how to print graphs, a bibliography of Lotus materials, how to transfer worksheet files back and forth between Lotus and VIP, and a table of decimal ASCII codes. There is a 7-page index and the table of contents is quite complete. So you should be able to quickly go to any desired place in the 250-page manual. Also provided is an 8-page "Quick Reference Guide" which might save you a trip through the manual with a reminder of some function.

There's one item I don't much care for. Whenever I exit the program I get a message from the program telling me to reboot the system. And I have to. Nothing works. The quit command on this program crashes the system! Hmmm. The program will only run when the disk is in drive A. Every time I try to run it from drive B, my system bombs out.

As soon as I get my ROMs, or I upgrade to 1-meg, I'll be able to put this program to its full use. For now I can just dream. If you buy the program now, it will impel you towards the upgrade if the ROMs are not ready. If you wait until you free up the memory, you'll be very satisfied with this product.

ELECTRO CALENDAR

Electro Calendar (Soft Logik Corp., 4129 Old Baumgartner, St. Louis, MO 63129, $40) is a desk-top calendar for your Atari ST. The program is fully integrated into the GEM desktop, and Soft Logik promises to have a version available which can be installed as a "desktop accessory".

The screen displays a calendar which shows the current month, as well as the next month and the previous month. The mouse is used to select any month from a box containing the 12 months. You can also select the year desired. A box also permits resetting the current date and time.

A memo can be created for any day desired. This is how you cause the current month's calendar to show highlighted dates. Memos can be saved to a particular date, or to the same day in all years, or to the "Clipboard". The clipboard option permits the file to be accessed by a word processor. You may also delete a memo. A search function permits you to find memos which contain a key word and which is present within a specified range of dates. The search function is case sensitive, so make sure you get your capital letters.

You may also print a displayed memo, a displayed month's calendar, or a calendar of the entire year selected. A day is selected for "memorizing" by clicking the mouse on the day. If you get into the habit of running this program daily, the calendar will show all "memo dates" in a highlighted form. You'll never again be surprised by a deadline. One enhancement I can suggest, and when the program is made into a desktop accessory this will be feasible, is to incorporate an alarm. An alarm function could fix it so you don't have to run the program in order to avoid missing a deadline. The alarm could show a critical date coming up by displaying a message on the desktop to alert you to a memo which should be reviewed. Also included in the package is a "Personal Computer Diary '86". This is a little pocket paper diary in which you must make notes with pen or pencil (how old-fashioned!).

You might notice they spell "Febuary" the way I like to spell it. But I don't believe this indicates anything negative about the operation of the program. This is an excellent program which does everything it promises, and does it elegantly and well. I can recommend it now, and when it's a desktop accessory it could be even more valuable.

SOLITAIRE & 21

Soft Logik also has a card-game disk for $20, allowing you to play solitaire and blackjack. This program is also integrated into the GEM desktop. Each game can be selected from a drop-down menu, and nearly all game functions are accomplished with the mouse. The games can be modified by a menu which requires some keyboard input: To set the level of the bet in blackjack (0 to 999), or to set the number of cards drawn (from 0 to 9) in solitaire.

The solitaire game plays very quickly. The cards are dealt out on the screen just as if some invisible hand were placing them on the table. The mouse drags the cards wherever you want to place them. I seem to be able to go through the deck only once, no matter how many cards I use in the draw. So the best bet is to use "1". The program permits you to move cards from one pile to the other. For instance if you have two red "5"s, you can move a black four back and forth between them. It's very easy to win, because the program allows you to put any card you wish into an empty space.

The blackjack game is a little slower if you must change the level of your bet often. The dealer wins ties, but the program "busts" the dealer, for instance, when it has a 4, a 5, a 2, and an Ace. Seems to me the Ace should not be taken as 11 in that case. But I needed the win.

The graphics are very good, but the program doesn't control the color. If you've customized your desktop colors, you might find the card colors unsatisfactory. I've changed my desktop colors radically, and so my spades and clubs come out amber.

1st WORD

1st Word is a word processor which has been distributed free to purchasers of the Atari ST in England. It is now being distributed free for a limited time as a premium to purchasers in the States. I have heard people say the program is in the public domain. This is not true. The program is copyrighted and cannot be copied without prior written permission. Since Atari does not own the copyright, they will not be able to say (as they did with ST Writer), "we're retaining the copyright, but user groups may distribute it freely." If anyone copies and distributes 1st Word, they will be in violation of the copyright holder's rights.

This program is easier to use than ST Writer for someone who is relatively unfamiliar with computers or word processors. In most respects it is also a more powerful program. It seems to have one serious fault: I find myself unable to control the line spacing. The program only seems to produce single-spaced copy. I also have been unable to configure a printer driver for my SG-10 in spite of the provision in the program for generating such a driver. I even found a "Gemini" driver on CompuServe. No help. I still can't italicize, do bold or double-wide printing. Superscripts and subscripts are also denied me. Either I have missed something in the instructions, or the method described for generating the driver does not function properly. When I print a document, my printer feeds a full page before it begins to print. I don't know if this is a problem with the program, or a result of my inability to generate a proper driver. A final problem I've found is that I've been unable to use this program to edit an ST Writer file, although ST Writer will edit 1st Word files.

With those problems out of the way, let me say I think this program is an excellent word processor. The best for all-around use I've yet seen for the ST. It's fully integrated into the GEM Desktop: All your accessories are available, as well as the program's own menu selections across the top of the screen. The bottom of the screen displays the functions of the F1-F10 keys. You can either type the key desired, or use the mouse.

All text input functions are designed to permit you to keep your fingers on the qwerty area of the keyboard at all times. The mouse can be used for most editing functions (reformatting, block operations, scrolling through the document, searching and replacing, etc.).

Cursor movement can be by character or word using the arrow keys and the Control key. You can move by page, or to the top or end of the document with the mouse on the slide bars at the right and bottom of the editing window. You can set up to four marks in your text and go quickly to those marks.

The column at the left of the editing window shows page breaks. There are conditional, soft and hard page breaks. You use the mouse to control these most easily.

Block operations are marvelous. You can have up to 4 editing windows open at once (yes, this means up to 4 separate documents!). You can paste, move and copy blocks to any window. Blocks are marked with the mouse. And the program will find the start or end of any marked block no matter how long. You can even write a block to a separate disk file.

And now for a real kicker. You can type onto the screen in at least 5 fonts. Bold, underline, italic, and light printing all appear on the screen in addition to the normal font. No control characters messing up your text. You see what you get! The paragraphs are formatted as you type. If you later go back and add or delete something, press F10 and the paragraph is reformatted. Press F8 and the text on a line is centered. You want the text of numbered paragraphs to be indented to the right of each paragraph's number? Use F9 after the paragraph number and the remaining lines of the paragraph are aligned on that column. Right justification is also shown on the screen.

You can toggle the "WP" line on the Edit menu. This permits you to create a pure ASCII file with no formatting information. You can also toggle word wrap on and off. You can size and drag windows wherever you want. Want to put characters in your text which are not available from the keyboard? The program has a box with the entire ST character set in it. Just click the mouse on a character and it prints at the cursor location. You'll probably have to do a screen dump to reproduce the character with your printer.

If you can get your hands on this program, I believe you'll be using it for most of your word processing. I think Atari will be selling the program, but I don't know the price.

DEGAS ($40, Batteries Included) is in the hands of a commercial artist with decades of experience in the industry. We will shortly have a review of this product after testing by a professional.

— Jim Bumpas

STuff

Been waiting to get an ST until the ROMs are ready and you can upgrade to 1-meg? Well, Atari is making your choices more enticing. A friend of mine here in Eugene called me and said the 520 ST he just bought has the ROMs installed! And Atari is now selling the 1040 ST. A 1-meg machine with internal 1-meg disk drive and monitor: $999 for monochrome; $1199 for color.

The 20-meg hard disk is selling to developers for $699. It should also be available to the rest of us by March. Atari is still planning to sell their expansion box. It plugs into the DMA port and has 8 slots. This is where memory expansion will go, the IBM hardware emulator (3d party, not Atari), and other goodies. Basic is here for the ST. You should have received yours by the time you read this. From the list of commands it has available it should be one of the most powerful Basics around. Its best feature, though, will probably be to stimulate 3d party software developers to sell a better product. At least as a freebie it doesn't cost too much (some might argue with me).

Don E. in the Dec. 1985 Puget Sound Atari News reports his measurement of disk access speed for the ST. He used the desktop disk duplication utility, which includes verification of the writes. It took 39 seconds accessing the input disk and 71 seconds for the output disk. If the no verify option was used, the output disk could be closer in time to the input disk.

The January 1986 HiSug (Sparks, NV), in an article copyrighted by Maurice Molyneaux, reports a couple of interesting items. He says he used the Hippo Disk Utilities to examine the code contained in his Desktop Control Panel. He discovered the defaults for the Panel's time and date on the 11th line of Page 42. In Ascii, the data shows as "533P. 52985". He changed it to read his birthdate. I second his advice: Perform this little trick only upon a copy!

He also says if you install a disk drive and type a lower-case "c" for the drive identifier the new "disk" icon will open a window to the cartridge slot! I tested this one, and the window does say "Cartridge"! An upper-case "C" only produces a drive C:. I wonder what we can do with this information? Give us a cartridge to find out.

ST Library Additions

Animation Demo (parrot flies across several screens);

Terminal programs (pre-release STalk and a public domain terminal);

From the Portland Atari Club, C source-code for accessing the time and date functions and some other utilities.

A disk sector editing utility.

A sound and picture demo which can play through the MIDI or use the ST sound chip. It's from Audio Light but it's protected. So we can only show it. Seems a bit short-sighted to protect a demo disk. If you want to run the show, there's an unprotected version on CompuServe.

A Piano Keyboard program using the ST's sound chip. This is a fun one. It's an advertizement for a $40 product from Intersect Software.

For you monochrome users, we also have a very good desktop accessory called "BICALC". You can now bring up a calculator which performs calculations in both hex and decimal. It even has a "b" key which seems to translate the number into binary! This is a VERY useful item.

A demo disk from Audio Light, Inc. similar to the DEGAS and NEO slideshow programs we've seen. This one plays a different song simultaneously with the display of each picture. And they sell both a drawing program and a music editing program. The sound will play either with your ST's sound chip, or through the MIDI interface to a synthesizer!

Insoft, Corp. (1834 Beacon St, ste 1, Brookline, MA 02146) sends us their January, 1986 magazine on a disk: "Enclosed is our January issue of our Magazine on a disk. This disk may be freely copied or distributed in any way you see fit. All we ask is that we are referenced as the providers of this information. Thank you, Mark Allen" The current issue has interesting news and rumors. It also contains several source, C, .doc, and .prg files which you may find interesting. I find the programs which allow the user to manipulate the ST's sound registers very interesting.

We now have a library list of some 3 pages. If you want a copy of the list, send $0.50 plus whatever postage you want me to use over 22 cents. The disks are $10 each for single-sided; $15 for double-sided (I put 2 disks on the double-sided disk).

ST-Talk

ST-Talk (Version 1.0, Quantum Microsystems, Inc., P.O. Box 179, Liverpool, NY 13088, $17.95) is an inexpensive telecommunications package which is designed to turn your 520ST into an intellegent terminal. This happened to be the first program I purchased for my ST, knowing that bulletin boards around the country provide a wealth of public domain software.

The program itself is packed with features, and fairly straightforward to use. You have the ability to receive and send files with XMODEM protocol. It also allows you to upload and capture text files.

Using ST-Talk is a fairly easy affair, and can be done without even reading the two pages of documentation. Unfortunately the program does not have any of the GEM hooks so everything is done with menus. After double-clicking STTALK.PRG you are presented with a title screen. This screen asks for input of the date and time, and as soon as the last digit is entered you are in the main part of the program.

The main screen consists of one line containing the time, program title and baud rate. The second line is a combination status/input line and it also displays the translation type. Then there are 21 lines of terminal display. and finally the last two lines contain the company name and the "HELP" and "UNDO" key functions.

Function keys are used for most of the program parameters. F1 toggles capture on and off. F2 is used to upload text. F3 allows you to receive a file with XMODEM. F4 sends an XMODEM file. F5 will set the baud rate from 300 to 9600 baud. F6 resets the clock to whatever time you choose. F7 clears the screen and gives you a dialing menu. F8 allows you to dial by tone or pulses on a Hayes compatible smartmodem. F9 selects between ASCII/VT52 or ATASCII/XE modes. And finally F10 provides information on the program and the version number.

Version 1.0 seems to have a few bugs. Automatic dialing on my Qubie modem just doesn't seem to function right, which means putting in the command sequence manually. Occasionally on XMODEM downloads the program locks up after trying to receive a block 9 times. And in the dialing menu you only have room for 26 numbers, with each number represented by a different letter of the alphabet. If you need to edit the phone numbers, this is done by pessing the ALT + the letter you want. But you can only edit one number at a time and you are automatically returned to the main screen. And if you look at the back of the package you see some commands that do not even exist. QMI says that ALT + W puts you in a type ahead window and that ALT + U will allow the use of macros. Neither of these functions were present in this version. QMI has already released Version 1.2 but the upgrade is not free. The cost is $2.00 for shipping and you have to send them the old disk.

The ATASCII/XE mode allows the use of inverse video in both sent and received texts. You can even send an ASCII carriage return in this mode with the ALT + M key combination.

If you want a powerful communications package and one free from bugs buy PC/InterComm. But if you are just fooling around with telecommunications or don't need all those fancy terminal emulators, then ST-Talk might be for you. Besides $17.95 is a little easier to swallow than $125.00 for PC/InterComm. By the time you read this I should have my updated copy, and if there are significant changes I'll report them here. If not, at least It should be bug-free.

ST-Talk is available at Computer Palace or direct from the author.

— Buddy Hammerton

GRADESCAN

GRADESCAN may well be the answer to the teacher with an 8-bit Atari computer. Having reviewed several "grade books" for the Atari, GRADESCAN is the first available which allows ease of use near that of the traditional grade book.

After booting the program, a menu appears which instructs you to insert a GRADESCAN data disk. Menu options include: 1. Retrieve Data from Disk; 2. Create New Class; 3. Enter Grades; 4. Examine Averages; 5. Examine Grades; 6. Examine Class; 7. Correct or Revise Records; 8. Add or Delete Student??print class averages, plus print out a class roster complete with squares to create your own paper and pencil grade book or for notations of your choice.

Entering grades is a snap. You enter the class you wish to work with, enter the number of grades you wish to enter, the new assignment names, and the student names automatically scroll to screen as you enter the grades. Most other functions are nearly as neat. The only function which could be simplified is the Correct or Revise Records option. You are asked for several responses to revise more than one grade. It seems these steps could be simplified by making a RETURN response continue the same function, and make a NO response apply when you wish to go to a new student, or a new option.

Without any modifications, GRADESCAN is still the best Atari grade book of the three I have used. It takes about the same amount of time to enter grades that it usually takes to calculate grades, but now you can print out grades and reports without duplicating the same information time after time. GRADESCAN is available from: GRADESCAN, 1722 Golden Court, Crofton, MD 21114.

— W. Ray Quick

MEETING

WEDNESDAY

FEBRUARY 12TH

7:30PM

SOUTH

EUGENE

HIGH

Atari Computer Enthusiasts

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On line 24 hours a day, except for servicing and updating. Consists of a 130 XE upgraded to 576k by Charlie Andrews, 2 double-density ramdisks, 2 double-density disk drives, and a 10-meg hard disk from Supra Corp, an Epson MX80 printer, a 2400 US Robotics Courier modem, running the Mindlink Bulletin Board software (modified).

Best of ACE books

Volume 1 contains bound issues of the ACE Newsletter from the first issue, Oct. 1981 to June, 1982.

Volume 2 contains July 1982 through June 1983.

Only $12 each ($2 extra for airmail). Available only from George Suetsugu, 45-602 Apuapu St., Kanoehe, HI 96744.

SortFinder Index

SortFinder Index

A composite index of Atari related articles in four popular computer periodicals, including the ACE Newsletter. Volume 1 covers April, 1981 through June, 1983. Volume 2 covers July, 1983 through December, 1985. Only $6 per printed copy or $11 per disk copy for ACE members. Available from: Jim Carr, 2660 S.W. DeArmond, Corvallis, OR 97333.

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